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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/730,852	12/09/2003	Kiyonori Oyu	ELPIDA 03USFP943	5218
27667	7590	04/05/2006	EXAMINER	
HAYES, SOLOWAY P.C. 3450 E. SUNRISE DRIVE, SUITE 140 TUCSON, AZ 85718			NGUYEN, THINH T	
			ART UNIT	PAPER NUMBER
			2818	

DATE MAILED: 04/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/730,852

Applicant(s)

OYU ET AL.

Examiner

Thinh T. Nguyen

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date. _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED OFFICE ACTION

1. This is in response to Applicant communication on 3/21/2006.
2. Claims 1-8 and new claim 18 are pending in the Application.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(b/e) that form the basis for the rejections under this section made in this office action.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claim 1,2 are rejected under 35 U.S.C. 102(b) as being anticipated by Uchida et al. (U.S. Patent 4,682,200)

REGARDING CLAIM 1

Uchida discloses (in the abstract, in column 7 lines 44-48) a semiconductor memory device comprising: a semiconductor substrate; and gate electrodes formed for a transistor on the semiconductor substrate through a gate insulating film, wherein a gate length of the gate electrode is longer than a half pitch (or minimum processing dimension F). Noted that F is the minimum process dimension as disclosed in Kim et al. (US patent 6,501,116) column 9 lines 15-20.

REGARDING CLAIM 2

Uchida anticipates claim 2 since the channel length (the shortest distance between the drain and source diffusion region of the MOSFET) is inherently the same as the gate length as shown in the disclosure by Tobita (US patent 6,043,638)

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102(e) that form the basis for the rejections under this section made in this office action.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claim 1-2, 3, 8, 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Furukawa et al. (U.S. Patent 6,426,175).

REGARDING CLAIM 1

Furukawa discloses (in column 16 lines 29-39) a semiconductor memory device (Furukawa discloses a DRAM or Dynamic random access memory) comprising: a semiconductor substrate; and gate electrodes formed for a transistor on the semiconductor substrate through a gate insulating film, wherein a gate length of said gate electrode is longer than a half pitch (or minimum processing dimension F).

REGARDING CLAIM 2

Furukawa discloses (in fig 27, fig 31, the abstract) a semiconductor memory device, comprising: a first diffusion layer formed in a surface of said semiconductor substrate to function either as a source or a drain (fig 27 reference 2738, column 15 line 6); and a second diffusion layer formed in the surface of said semiconductor substrate to function either as a source or a drain, wherein the shortest distance between said first diffusion layer and said second diffusion layer is proportional to said gate length.

REGARDING CLAIM 3

Furukawa discloses (in fig 27, fig 31, fig 29, the abstract) a semiconductor memory device, wherein a gate insulating film formed (fig 29 layer 2760) on the semiconductor substrate and extending over the first diffusion layer and the second diffusion layer, wherein the gate electrode is formed on the gate insulating film.

REGARDING CLAIM 8

Furukawa discloses (in column 16 lines 29-39) a semiconductor memory device according, wherein the gate length of the gate electrode is equal to or longer than 1.3 times the half pitch (noted that Furukawa discloses in column 16 lines 29-39 that the gate length can be 1.3F (column 16 line 34) or 1.5F (column 16 line 32) (i.e. 1.3 or 1.5 times half pitch).

REGARDING CLAIM 18

Furukawa discloses (in column 16 lines 29-39, in the abstract, fig 27,) a semiconductor memory device, comprising: a semiconductor substrate (fig 29 reference 2718), gate electrodes (fig 27 reference 2730) formed for a transistor on the semiconductor substrate through a gate insulating film; a first diffusion layer formed (fig 27 reference 27) in a surface of the semiconductor substrate to function either as a source or a drain; and a second diffusion layer

Art Unit: 2818

(fig 27 reference 2738) formed in the surface of the semiconductor substrate to function either as the source or the drain, wherein the shortest distance between the first diffusion layer and the second diffusion layer is greater than a half pitch (or minimum processing dimension F).

7. Claim 1-2, are rejected under 35 U.S.C. 102(e) as being anticipated by Park et al. (U.S. Patent 6,396,096).

REGARDING CLAIM 1

Park discloses (in the abstract, fig 5, column 4 lines 64-67) a semiconductor memory device (Park discloses a DRAM or Dynamic random access memory) comprising: a semiconductor substrate; and gate electrodes formed for a transistor on the semiconductor substrate through a gate insulating film, wherein a gate length of said gate electrode is longer than a half pitch (or minimum processing dimension F).

REGARDING CLAIM 2

Park discloses (in the abstract, fig 5, column 4 lines 64-67, column 4 line 29) a semiconductor memory device, comprising: a first diffusion layer formed in a surface of said semiconductor substrate to function either as a source or a drain and a second diffusion layer formed in the surface of said semiconductor substrate to function either as a source or a drain, wherein the shortest distance between said first diffusion layer and said second diffusion layer is proportional to said gate length.

Claim Rejections - 35 USC § 103

8. The following is a quotation of U.S.C. 103(a) which form the basis for all obviousness rejections set forth in this office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park et al. (U.S. Patent 6,396,096) in view of Applicant Admitted Prior Art or AAPA (Fig 2 of Applicant Application).

REGARDING CLAIM 4.

With regard to claim 4, Park discloses all the invention as set forth in the rejection of claim 2 except for going into detail about a first insulating film provided to cover the gate electrode; a first contact section formed to pass through the first insulating film to the first diffusion layer; a bit line formed on the insulating film; a second contact section formed to pass through the insulating film to the second diffusion layer, and a capacitive section formed on the first insulating film and connected to the first contact section. Applicant Admitted Prior Art, discloses a first insulating film provided to cover the gate electrode; formed to pass through the first insulating film to the first diffusion layer; a bit line formed on the insulating film; a second contact section formed to pass through the insulating film to the second diffusion layer, and a capacitive section formed on the first insulating film and connected to the first contact section.

It would have been obvious to one of ordinary skill in the art the time the invention was made to incorporated a first insulating film provided to cover the gate electrode; a first contact section formed to pass through the first insulating film to the first diffusion layer; a bit line formed on the insulating film; a second contact section formed to pass through the insulating film to the second diffusion layer, and a capacitive section formed on the first insulating film and connected to the first contact section of the AAPA into the Park et al. device since both Park and the AAPA are in the same endeavor of making DRAM.

REGARDING CLAIM 5,6

With regard to claim 5-6, as set forth in the rejection of claim 4, the combined device disclosed by the AAPA and Park disclosed all the invention except for the side length of the first contact and the second contact. These features, however, are considered obvious since it has been held that when the general condition of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

10. Claim 7 is rejected under 35 U.S.C, 103(a) as being unpatentable over Furukawa (U.S. Patent 6,426,175).

REGARDING CLAIM 7

With regard to claim 7, as set forth in the rejection of claim 1, Furukawa discloses all the invention except for the exact impurity concentration. These features, however, are considered obvious since it has been held that when the general condition of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art.

Fig. 2 PRIOR ART

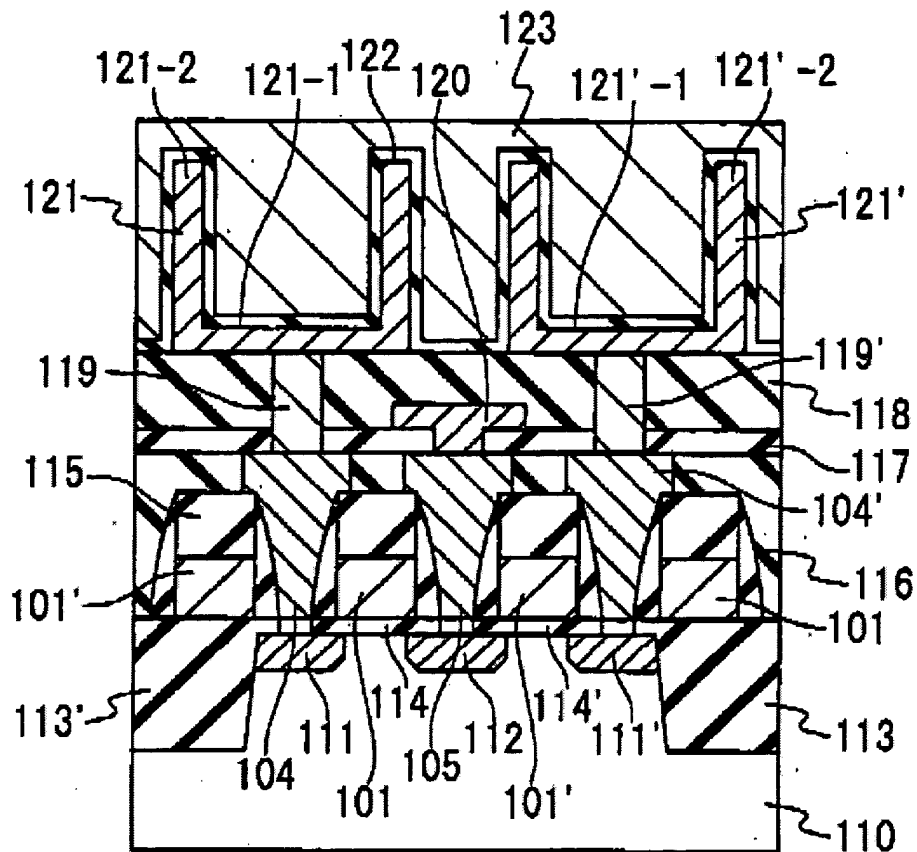
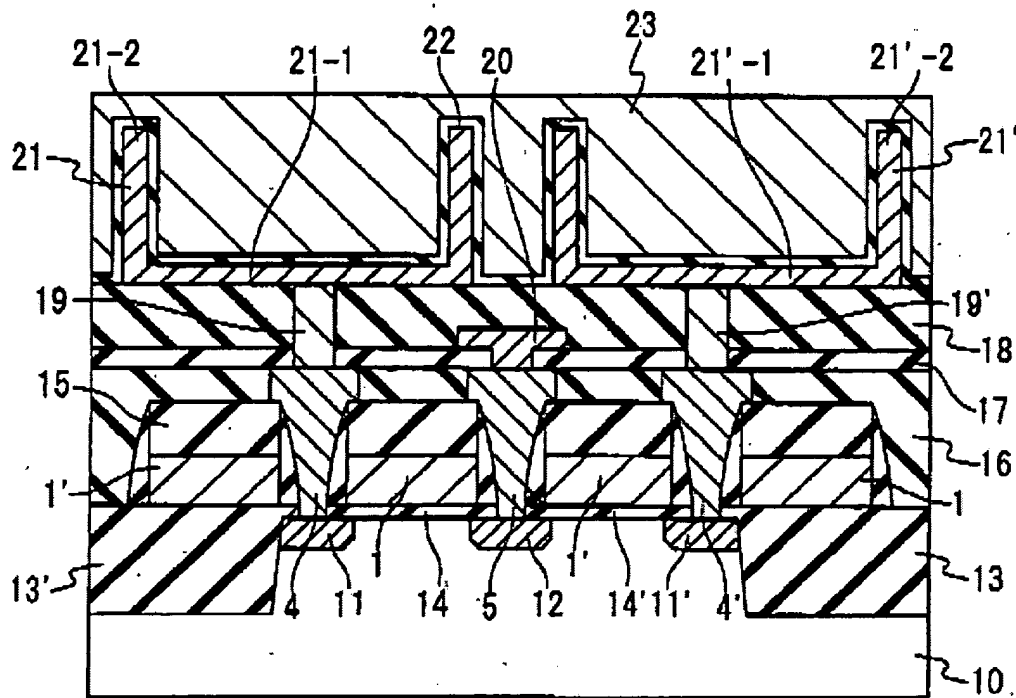


Fig. 5



APPLICANT'S INVENTION

11. When responding to the office action, Applicants are advised to provide the examiner with the line numbers and the page numbers in the application and/or references cited to assist the examiner to locate the appropriate paragraphs.

12. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period

Art Unit: 2818

for response will cause the application to be abandoned (see M.P.E.P. 710.02(b)).

13. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d) which papers have been placed of record in the file.

CONCLUSION

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thinh T Nguyen whose telephone number is 571-272-1790.

The examiner can normally be reached on Monday-Friday 9:00am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached at 571-272-1787.

The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

Thinh T. Nguyen



Art Unit 2818



David Nelms
Supervisory Patent Examiner
Technology Center 2800